ExxonMobil
Signature Polymers

Case Study

Exceed™ Flow+ Exceed™ Vistamaxx™

Stretch hood packaging films with leading-edge technology for a new generation

Puncture resistance | Toughness | Holding force | Less material use

Challenge

Develop a new generation of high-performance stretch hood films

Zhejiang Bili Polymer Technology Co. Ltd. has established itself as the leader in stretch hood films in China. The company is relentless in enhancing its market competitiveness as it strives to become an international powerhouse with global influence. To achieve its goals, the company continues to strengthen its capabilities with the addition of new capacity and stretch hood technology from Lachenmeier, Denmark, while also focusing on the development of leading-edge technology to upgrade product quality.

Solution

Exceed™ Flow+ and Vistamaxx™ performance polymers

Having a long-term technical collaboration in place, which focused on the development of innovative packaging solutions to meet booming industry needs, Zhejiang Bili and ExxonMobil turned their attention to high-performance stretch hood films. The development of new stretch hood film solutions took advantage of Zhejiang Bili's industry experience and ExxonMobil's polymer and application expertise.

"Today, end users are increasingly turning to stretch hood solutions to replace traditional cardboard and shrink hood alternatives," said Zhu Qiang, Vice Chairman, Zhejiang Bili Polymer Technology Co. Ltd. "ExxonMobil's performance PE polymers and Vistamaxx performance polymers provide outstanding performance which, combined with our manufacturing know-how, created opportunities to develop solutions that some people might think will only happen in the future. ExxonMobil PE has made them possible today."

Result

Stretch hood films with enhanced toughness, puncture resistance and high holding force

ExxonMobil's industry-leading performance polymers enable Zhejiang Bili to fabricate tailor-made EVA-free stretch hood packaging solutions. Using Exceed Flow+ m 0216 and Vistamaxx 6102FL performance polymers in the core layer and Exceed™ performance PE polymers in the skin layers of the film provides a good combination of excellent toughness, high clarity and a tailored balance between elasticity and holding force. As a result, these films are ideal for a diverse range of hooding lines and applications.

"The addition of Exceed Flow+ m 0216 significantly improves the toughness and puncture resistance of the film which, together with high holding force, greatly reinforces the load protection and pallet stability throughout supply chain," said Zhu Qiang. "The enhanced film performance also allows the manufacture of thinner stretch hood films that use less material and save packaging costs for end-users."

Film attributes	Derived benefits
▪ Toughness and puncture resistance ▪ Holding force	▪ Better package integrity ▪ Improved load stability ▪ Less damage or loss during transportation
▪ Good optical properties	▪ Brand promotion ▪ Easy bar code scanning ▪ Quality trace and inventory management
▪ Customized COF and elasticity	▪ Hooding resilience ▪ Reduced hooding failure ▪ Consistent packaging operation
▪ Downgauging	▪ Unit packaging cost savings ▪ Source reduction
▪ EVA-free solution	▪ Lower odor ▪ Improved tensile strength

The new stretch hood solutions are well-suited for a wide range of applications including:

Products packed in bags such as chemicals, sand, cement, soil and peat (palletized goods)

Building products such as bricks, tiles and insulation materials (palletized goods)

Packaged goods, e.g. beverage, food and consumer products in bottle, can or pails

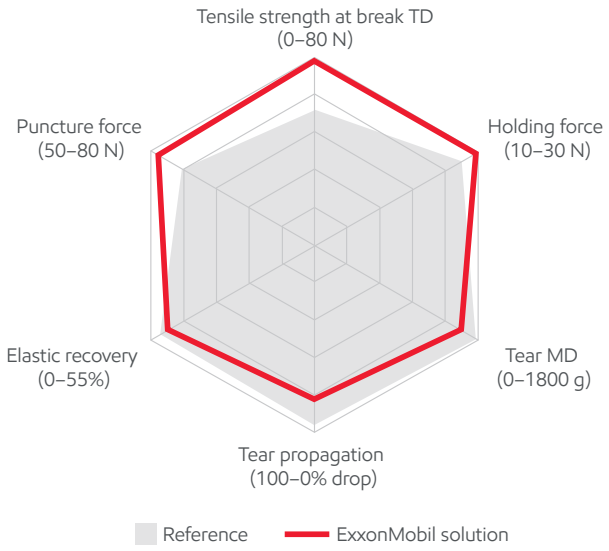
Large and small household appliances (white goods)

"The collaboration with ExxonMobil PE delivered exactly what we were looking for. A new generation of high performance stretch hood films that will allow us to increase our presence in overseas markets, while providing opportunities to develop our market share in China."

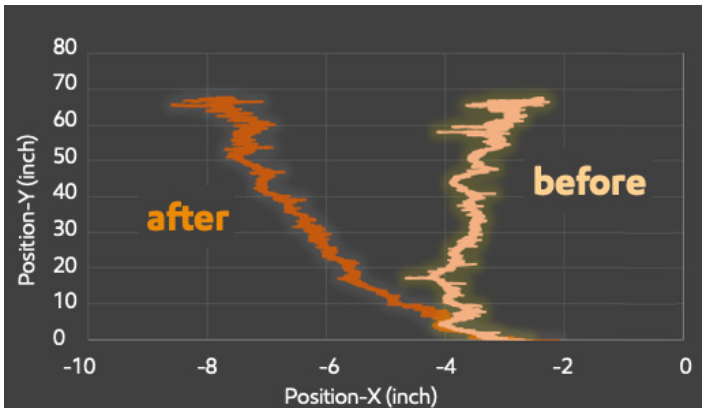
Zhu Qiang, Vice Chairman, Zhejiang Bili Polymer Technology Co. Ltd.

BILI PACKAGING
比例包装

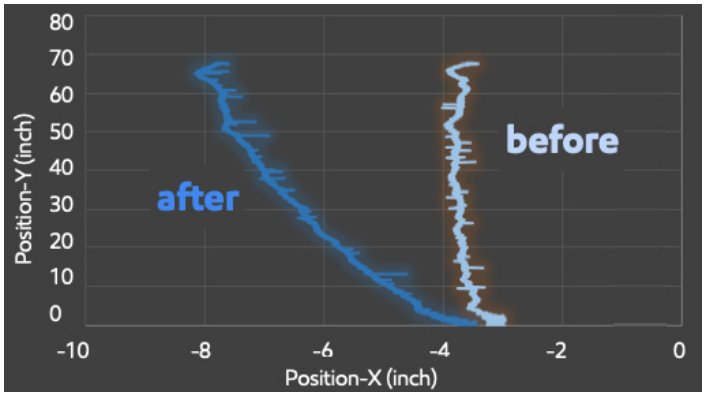
Selected properties for an Exceed™ Flow+, Exceed™ and Vistamaxx™ performance polymers film, compared to EVA based reference film



WOMS201811.0164
EVA based solution: MAC-182965
ExxonMobil: MAC-179780
Data obtained from tests performed by or on behalf of ExxonMobil



ExxonMobil (Exceed / Exceed Flow+ / Vistamaxx performance polymers)



EVA based solution

WOMS201904.0592-01
EVA based solution: MAC-191918
ExxonMobil: MAC-191919
Data obtained from tests performed by or on behalf of ExxonMobil

Film structures of ExxonMobil solution and reference

	Reference 120 µm	**ExxonMobil** 120 µm
Layer ratio	3-layer coex	1 / 3 / 1
Skins	EVA based solution	Exceed m 1018
Core		Exceed Flow+ m 0216.ML Vistamaxx 6102FL

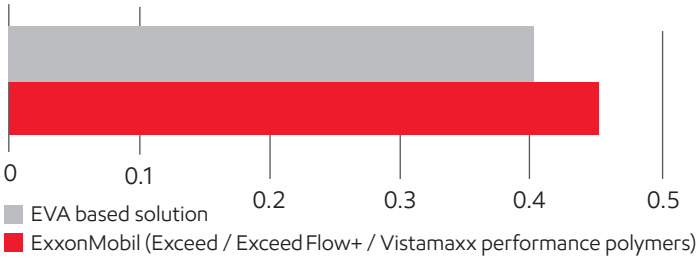
Transport simulation test

Testing parameters

Tilt degree	Up to 27° (normal 27°)
Vibration Level	Up to 60 Hz (normal 45Hz)
Duration	Up to 20s (normal 5s)

Acceleration test

Failure acceleration (g)



WOMS201904.0592-01
EVA based solution: MAC-191918
ExxonMobil: MAC-191919
Data obtained from tests performed by or on behalf of ExxonMobil

Test results demonstrate that the ExxonMobil solution can fully replace the conventional EVA based solution. In particular, during acceleration tests, the ExxonMobil solution delivers better load stability and more tolerance across the complex supply chain.

Grades	Melt index (g/10 min)	Density (g/cm³)	Key values in stretch hood film
Exceed™ Flow+ m 0216.ML[3]	0.2	0.916	▪ Exceptional melt strength for stable bubble ▪ High holding force ▪ Outstanding puncture resistance
Exceed™ m 1018.MA[1]/MK[2]/MF[2]/MJ[2]	1.0	0.918	▪ Excellent toughness ▪ Good optics ▪ Strong sealing performance
Vistamaxx™ 6102FL[4]	1.4	0.862	▪ Enhanced elasticity ▪ Good toughness

Data obtained from tests performed by or on behalf of ExxonMobil
1. Effective date of PDS: 05/22/2018 2. Effective date of PDS: 10/01/2018 3. Effective date of PDS: 05/22/2018 4. Effective date of PDS: 01/01/2017

Test item	Test method
Tensile properties	ExxonMobil method
Puncture test	ExxonMobil method
Stretch hood test TD (elastic recovery)	ExxonMobil method
Stretch hood test TD (holding force)	ExxonMobil method
Elmendorf tear resistance	ExxonMobil method
Stretch hood test TD – MD tear propagation	ExxonMobil method
Density	Based on ASTM D1505
Melt Index (190°C/2.16 kg)	Based on ASTM D1238
Acceleration test	Newton test method
Transport simulation test	Newton test method

Newton Research & Development Centre Sdn. Bhd is one of the leading research institutes that offers expertly designed packaging solutions for palletized loads, member of EUMOS and ISTA.

Contact us for more information: **exxonmobilchemical.com/pe**

ExxonMobil
Signature Polymers

Bring your impossible

E0520-402E49

What's new: ExxonMobil Signature Polymers

All our polymers are now positioned under a single portfolio brand: Signature Polymers. The aim is to simplify our product architecture and naming to improve portfolio navigation for you. We would like to stress that our commitment to high quality products remains the same, it is the names that change. Everything else remains the same. We will be making these modifications over the next six months so you will see both old and new grade names highlighted during that time.

Here's a quick overview of brands and grade names that have changed in this document:

Legacy commercial name	New commercial name
Exceed™ XP 6026	Exceed™ Flow+ m 0216
Exceed™ 1018	Exceed m 1018

Some of our existing Exceed, Achieve, Paxon and premium PP/HD grades have moved to Exceed brand; most existing Enable grades have moved to Exceed Flow[+]; most of our existing Exceed XP grades have moved to Exceed Tough[+]; most of our existing Exceed S grades have moved to Exceed Stiff[+]. More details here **https://www.exxonmobilchemical.com/en/brands/signature-polymers/exceed_high_performance_polymers** or contact your ExxonMobil representative to know more.

Want to see what's changed in our portfolio? Go to **exxonmobilchemical.com/sptransform**